

**Canada's  
Systematic Under Investment  
in the  
Education of Managers  
- A Review of the Research-**

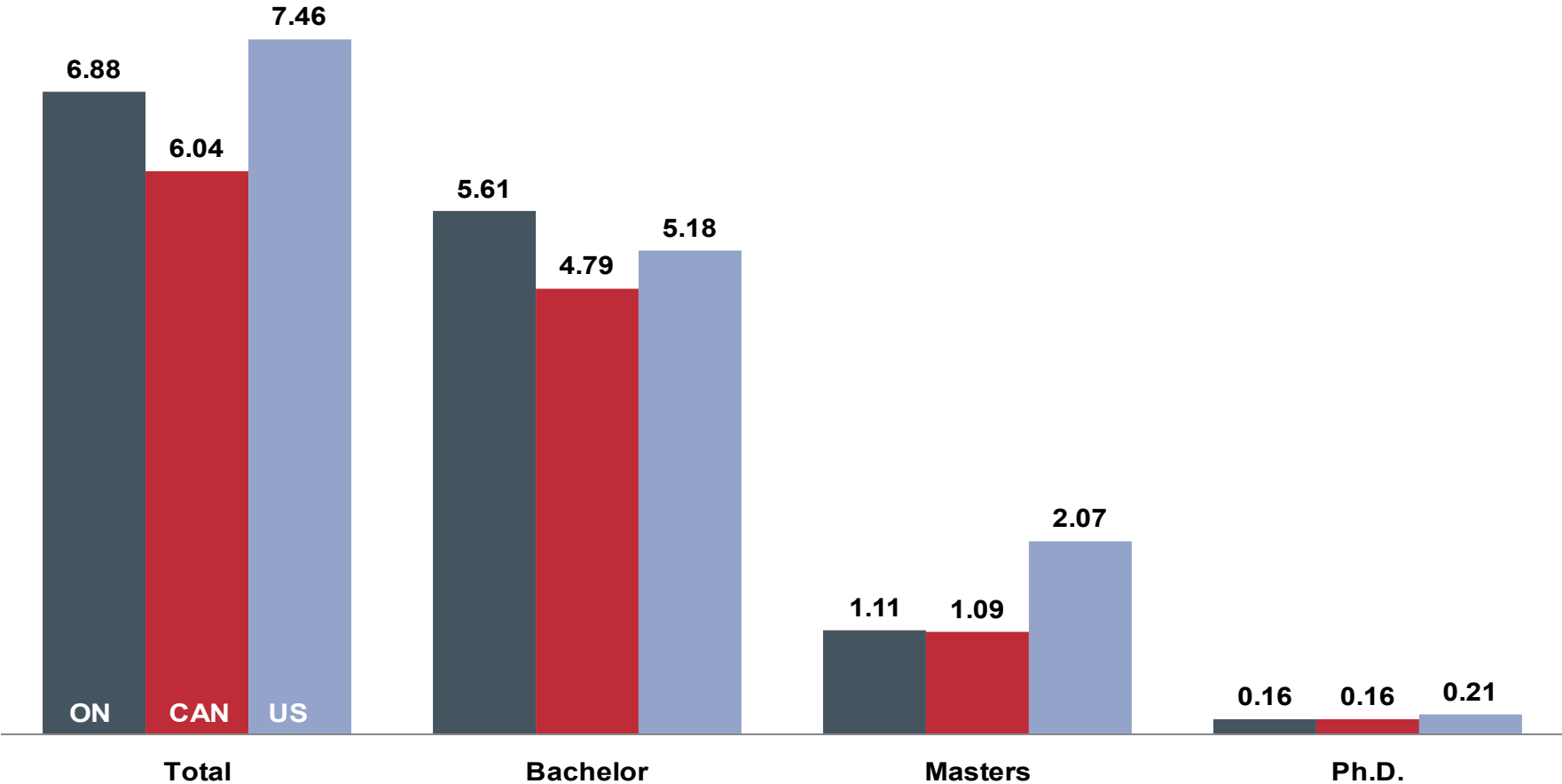
January 2011

# In Summary...

- **Canada and Ontario produce fewer university graduates than US**
- **Much of this gap is at the graduate level – and in the business discipline**
- **Supply of spaces, not demand, drives this difference as business acceptance rates trail arts & sciences and engineering**
- **Our managers are less well educated (irrespective of discipline) than their US counterparts**
- **This matters because of the link between education and management quality**
- **Our successful start-ups report access to management as a key challenge in their development**
- **Leaders of successful high tech firms come from all disciplines, not only science and engineering**
- **Yet federal and provincial research funding is heavily weighted towards hard science and virtually ignores the business discipline**

# Canada Produces Fewer Degrees Than the US

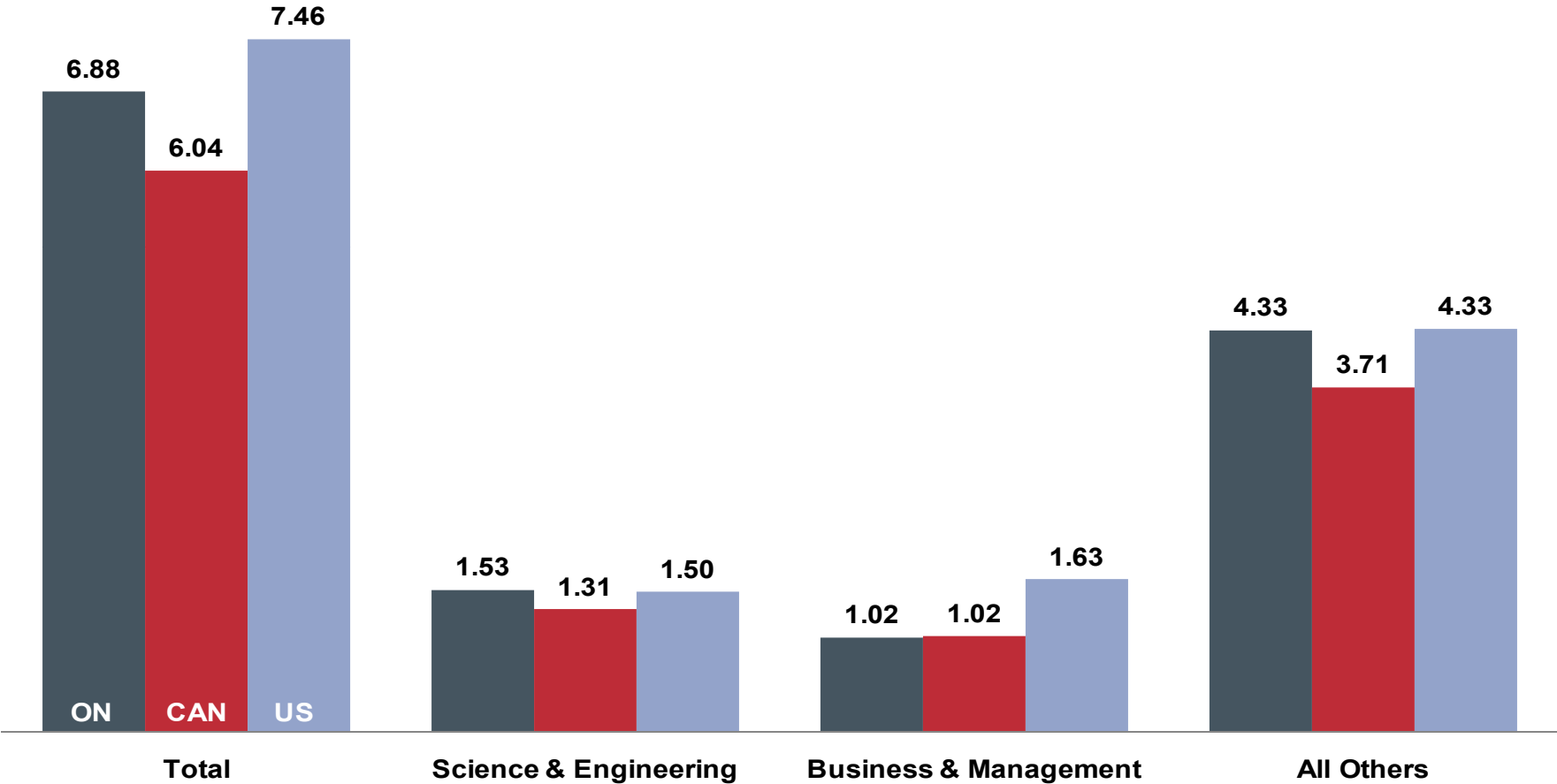
Degrees awarded per 1,000 population in Ontario, Canada and the US by level  
(Ontario & Canada: Calendar year 2008, US: Academic year 2007-2008)



Source: Institute for Competitiveness & Prosperity Analysis using data from Statistics Canada, Association of Universities & Colleges of Canada, US Department of Education, National Centre for Education Statistics

# Canada Produces Fewer Business Graduates Than The US

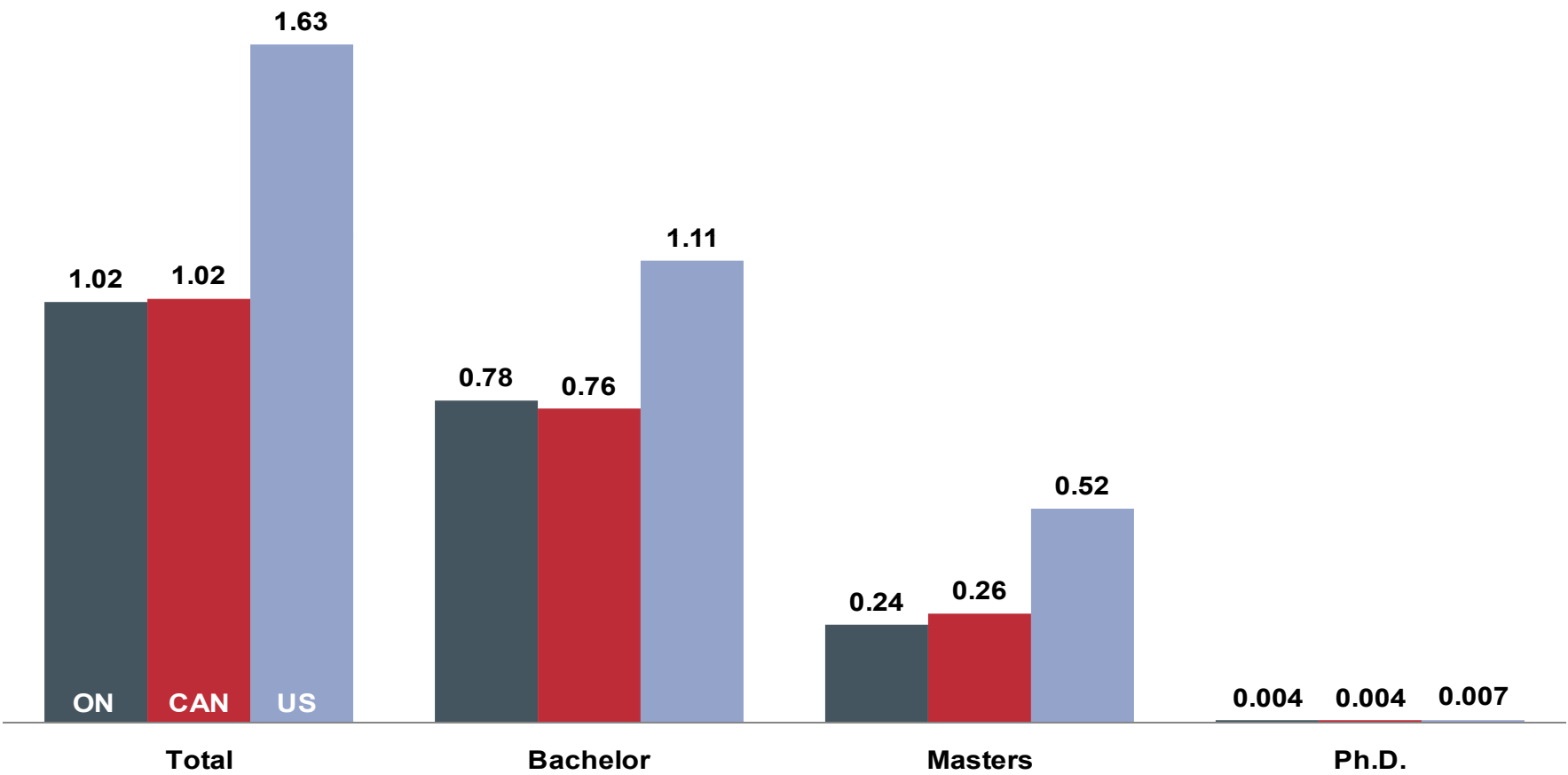
Degrees awarded per 1,000 population in Ontario, Canada and the US by field of Study  
Bachelor's degree or higher  
(Ontario & Canada: Calendar year 2008, US: Academic year 2007-2008)



Source: Institute for Competitiveness & Prosperity Analysis using data from Statistics Canada, Association of Universities & Colleges of Canada, US Department of Education, National Centre for Education Statistics

# Canada Produces Fewer Business Degrees At The Graduate and Undergraduate Levels

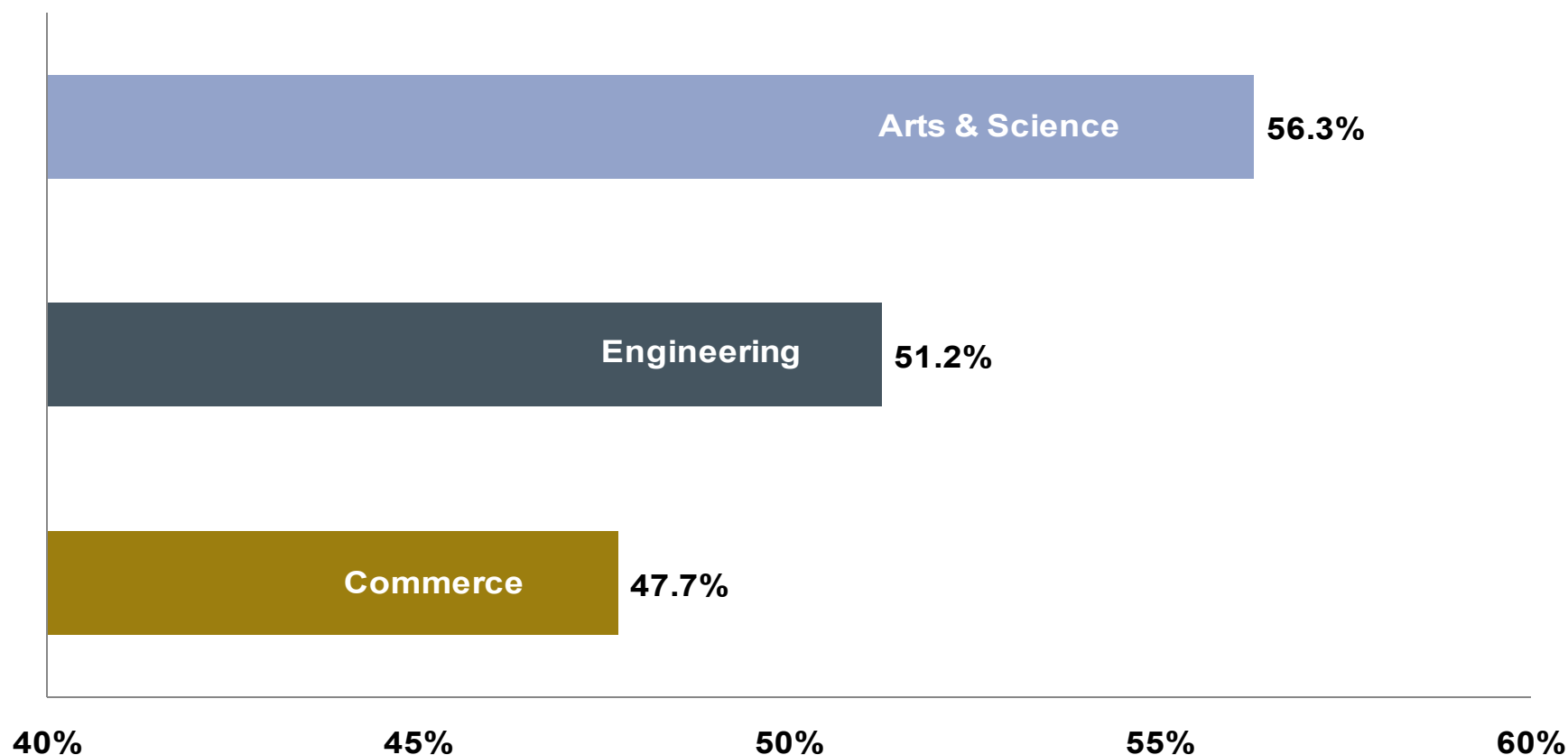
**Business & Management degrees awarded per 1,000 population in Ontario, Canada and the US by level of degree**  
(Ontario & Canada: Calendar year 2008, US: Academic year 2007-2008)



Source: Institute for Competitiveness & Prosperity Analysis using data from Statistics Canada, Association of Universities & Colleges of Canada, US Department of Education, National Centre for Education Statistics

# Admission to Business Programs in Ontario is More Difficult

Acceptance rates in Ontario Universities, average 2001-2008  
Based on first choice of applicant

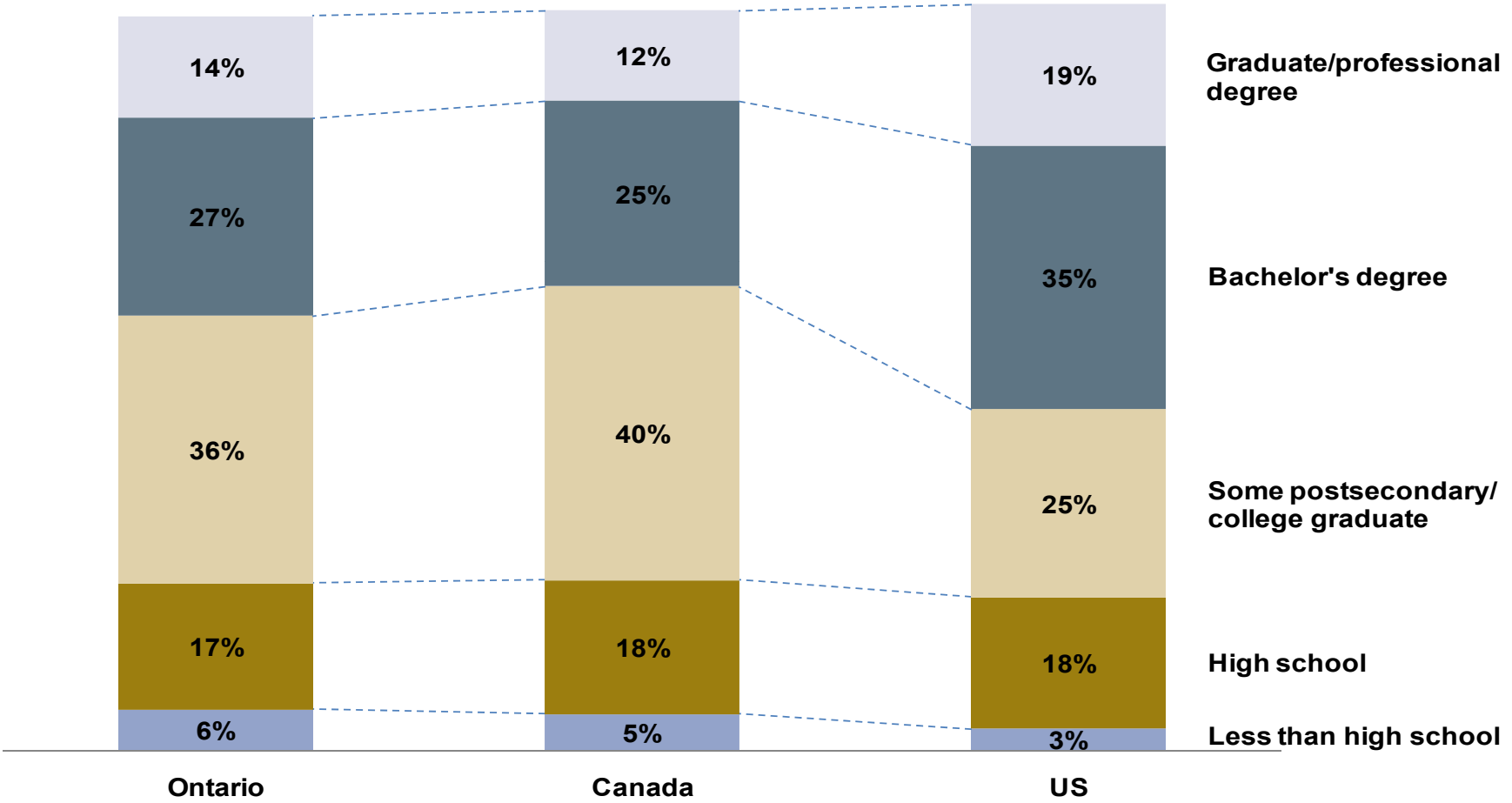


Acceptance rates is the ratio of the number of offers of admission to the number of applications - for first choice schools only

Source: Institute for Competitiveness & Prosperity using data from Ontario Universities Application Centre (OUAC)

# Canadian Managers Are Less Well Educated Than Their US Counterparts

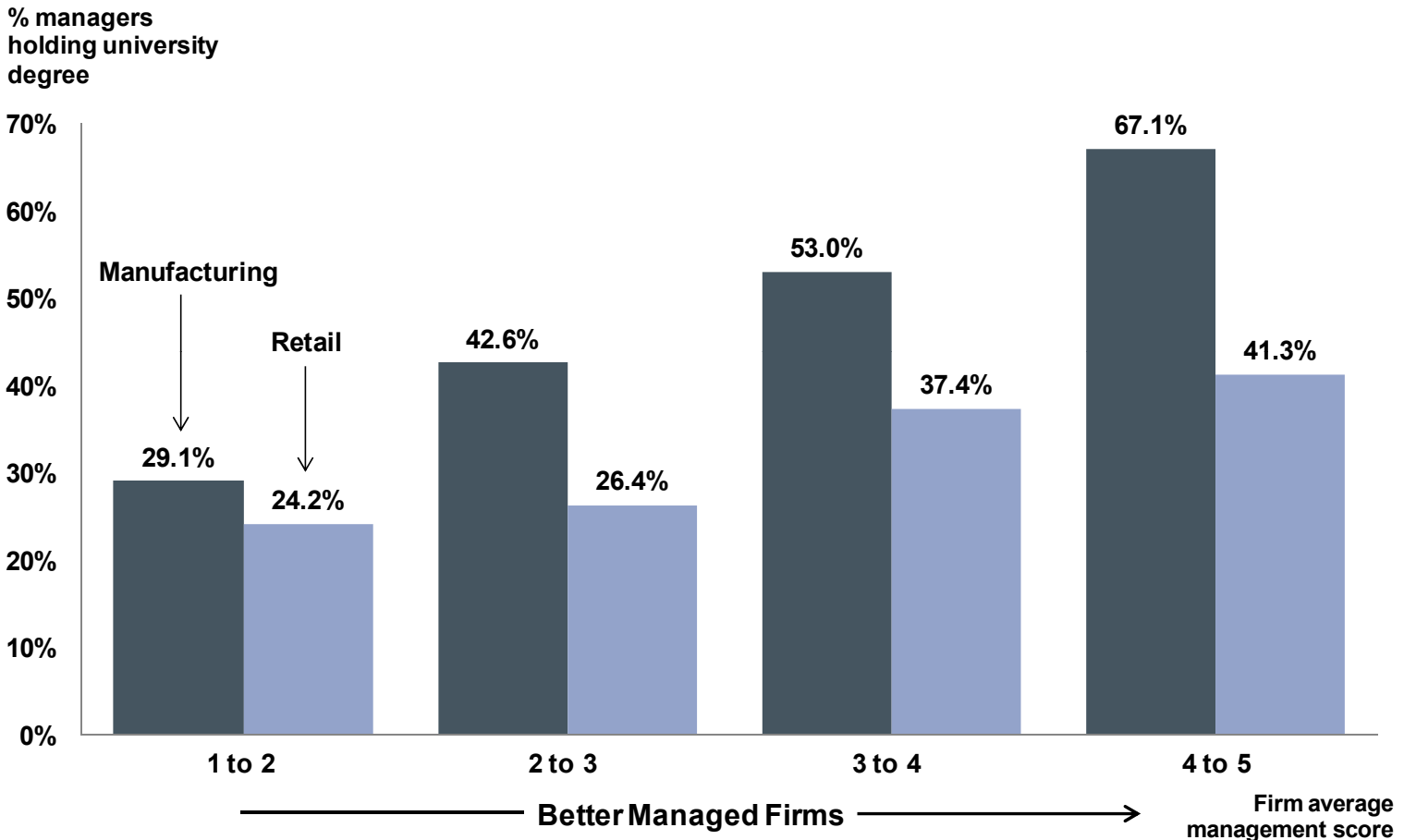
Educational Attainment of Managers (25-64), average 2006-2009



Source: Institute for Competitiveness & Prosperity analysis based on data from Labour Force Survey and Current Population Survey

# Better Managed Firms Have More Educated Managers

Percentage of managers with university degrees  
Canada, United States and United Kingdom combined

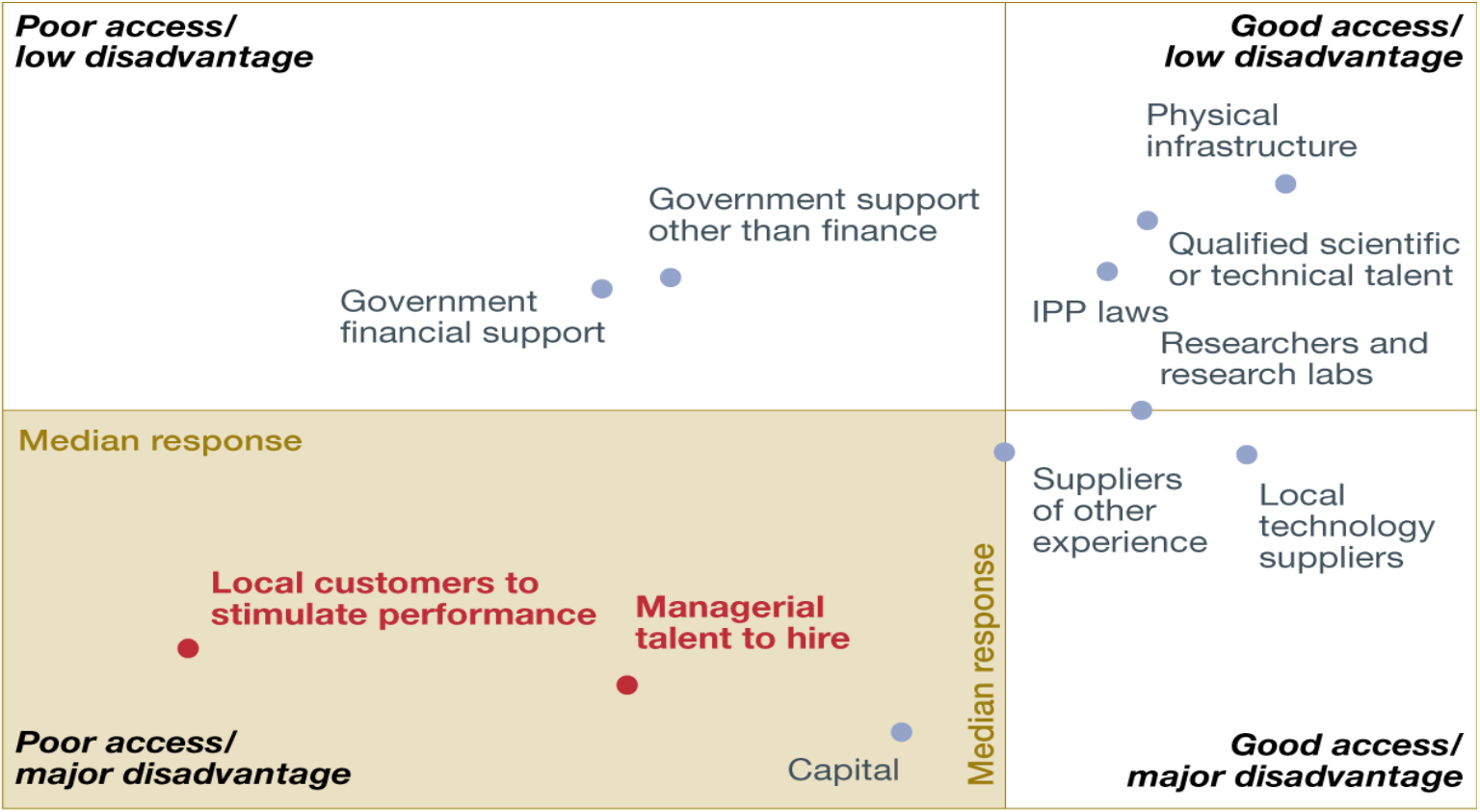


Note: "Management Score" on 1-to-5 scale assessing quality of management in implementing lean management. Assessment based on framework developed by Nick Bloom and John Van Reenen, "Measuring and explaining management practices across firms and countries," *Quarterly Journal of Economics*, November 2007; "% of managers holding university degree" represents percentage of managers at surveyed manufacturing/retail location.

Source: Management Matters dataset. Institute for Competitiveness & Prosperity analysis.

# Access to Management Talent a Key Weakness for Canadian Innovative Start-ups

Competitive disadvantage versus US firms



Quality of access by Canadian start-ups

From Institute research among successful venture-backed start-up.

X-axis: Did respondent report "poor" access or "good" access on a 1-to-5 scale to each of the 13 factors on the graph. Y-axis: Did respondent report "major disadvantage", "low disadvantage" vs major US competitor (note "advantage" was a possible response - but average responses were in the disadvantage area)

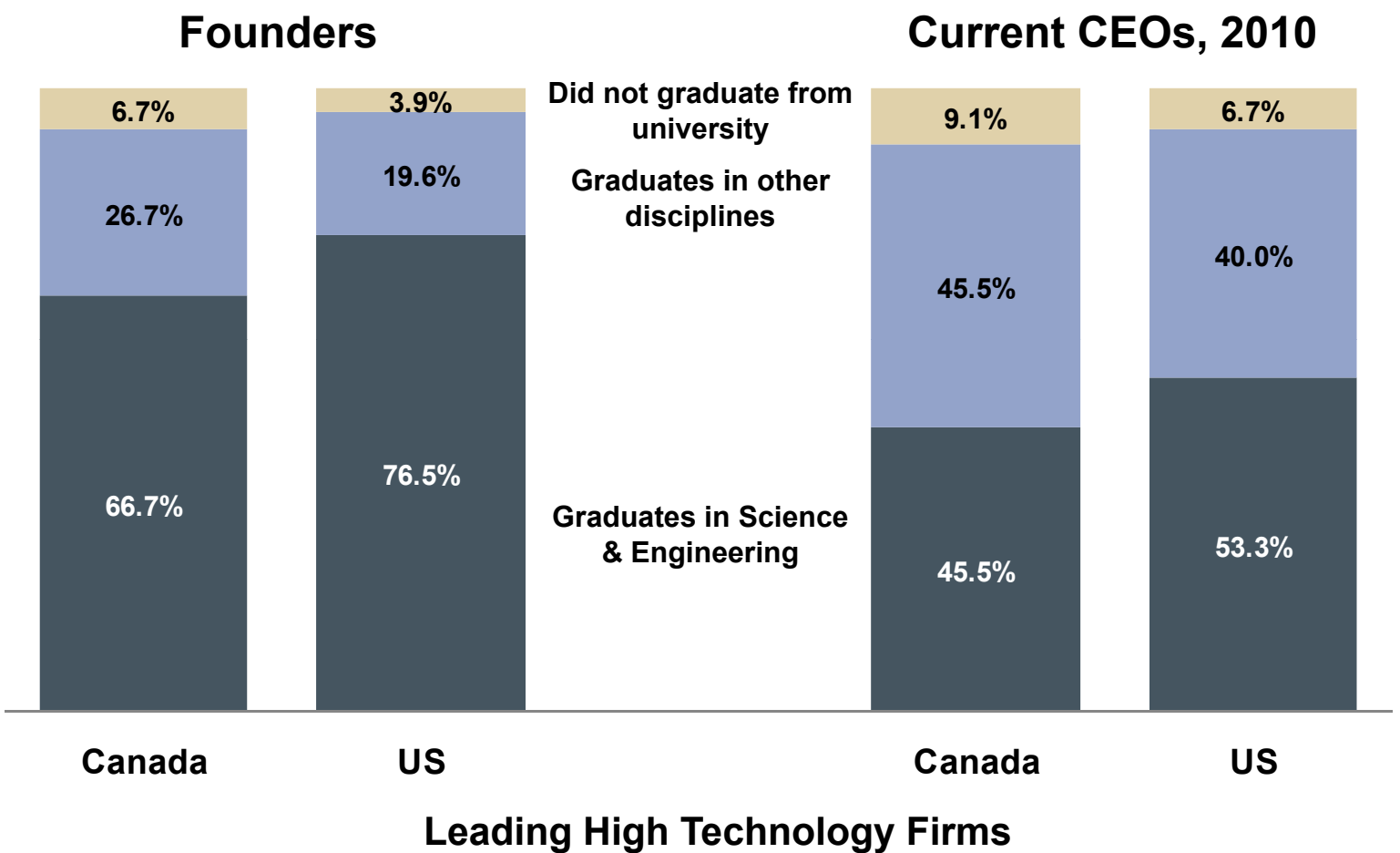
Source: The Strategic Counsel, Assessing the Experience of Successful Innovative Firms in Ontario, September 2004, a report sponsored by the Institute for Competitiveness & Prosperity available at <http://www.competeprosper.ca/research/InnovationInterviewStudyRep.pdf>

# No Fortune 100 High-tech Firms Led by Scientist

Firm (Fortune 100 rank)	CEO	Graduate Degree	Undergraduate Degree
Hewlett-Packard (10)	Léo Apotheker	None	Economics and International Relations
IBM (20)	Samuel Palmisano	None	History
Microsoft (36)	Steven Ballmer	MBA dropout after first year	Mathematics and Economics
Dell (38)	Michael Dell	None	None
Apple (56)	Steve Jobs	None	None
Cisco Systems (58)	John Chambers	MBA	Business Administration and Law degrees
Intel (62)	Paul Otellini	MBA	Economics

Source: Institute for Competitiveness & Prosperity; Fortune 500 (2010)

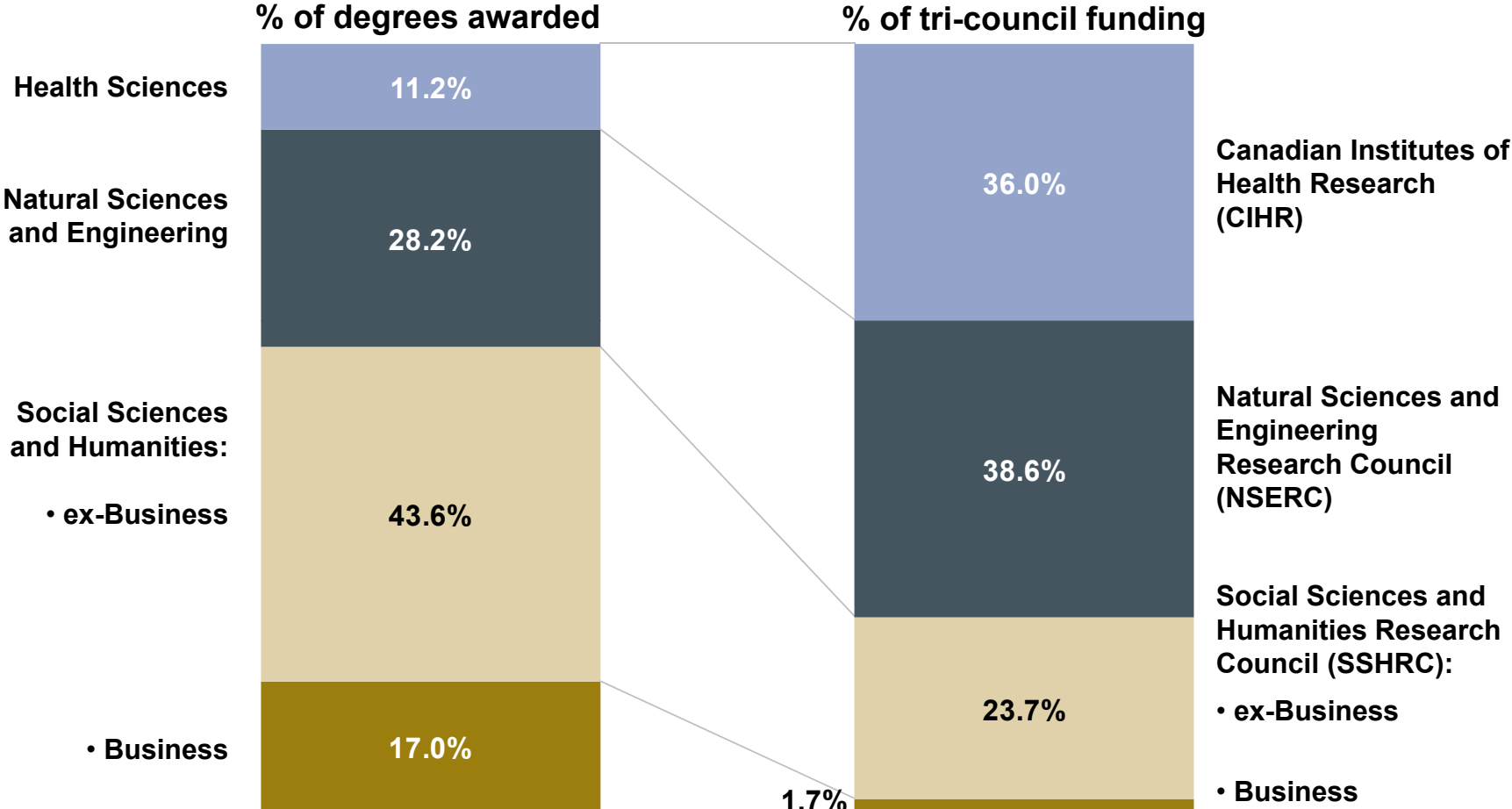
# S&E Grads Important as High Tech Founders; Less So as Firms Mature



Source: Institute for Competitiveness & Prosperity based on companies' public data. Canadian companies are 10 high tech Global leaders. US are Fortune 1000 high tech companies less than 30 years old

# Federal Funding of Agencies is Weighted to Hard Sciences

Funding from Canada's granting councils (2009-10)



Note: 1,152 out of 200,112 degrees could not be allocated to specific disciplines; SSHRC allocation between Business and ex-Business based on Grants and Contributions.  
 Source: Institute for Competitiveness & Prosperity analysis using data from Association of Universities and Colleges of Canada and Treasury Board of Canada Secretariat.

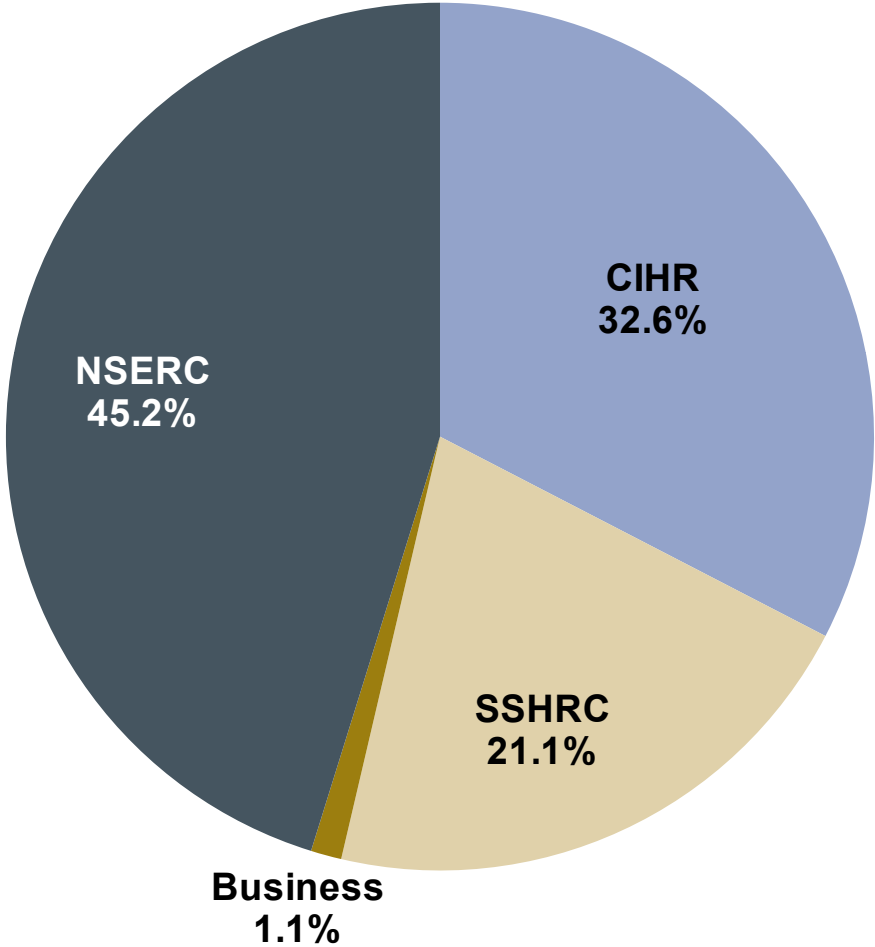
# Canada Research Chairs Under Represented in Business

## Chairs by Funding Agency (Actual % of occupied chairs), 2010

### % of Graduates

Undergraduate business: 17%

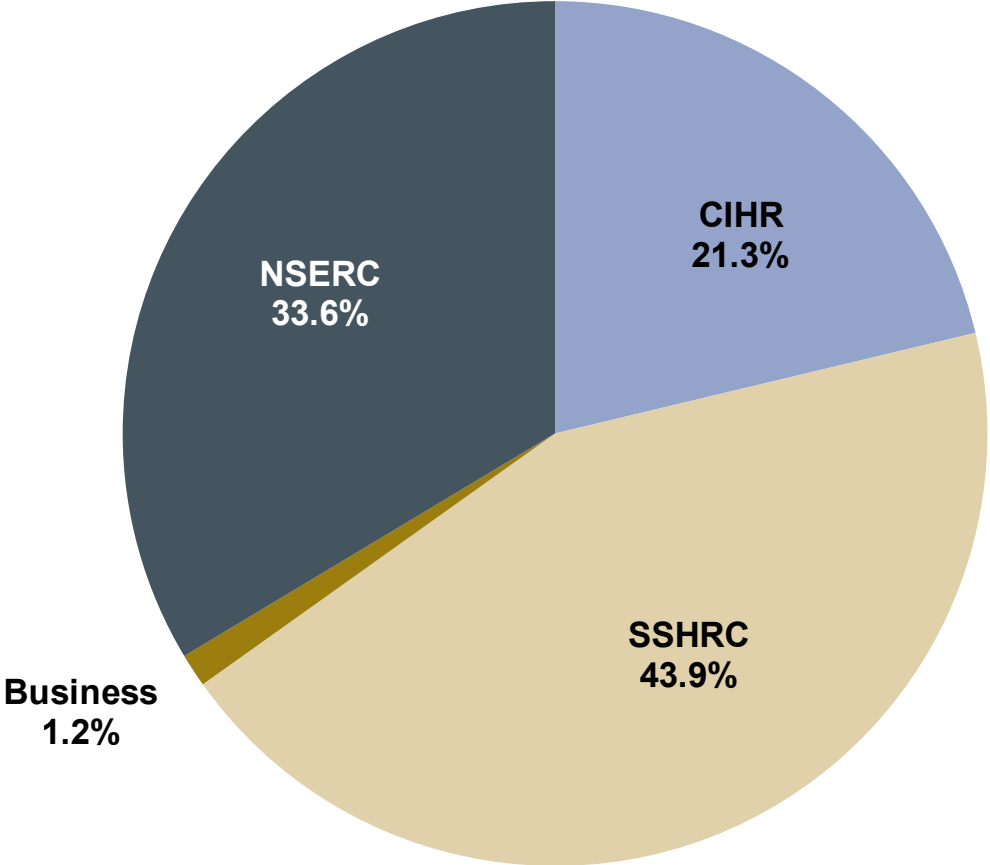
Graduate business: 23%



Note: "SSHRC" refers to SSHRC chairs excluding Business; "Business" refers to SSHRC chairs in Business discipline  
Source: Institute for Competitiveness & Prosperity analysis based on data from the Canada Research Chairs website, available online at: <http://www.chairs-chaire.gc.ca>

# Canada Graduate Scholarships Under Represented in Business

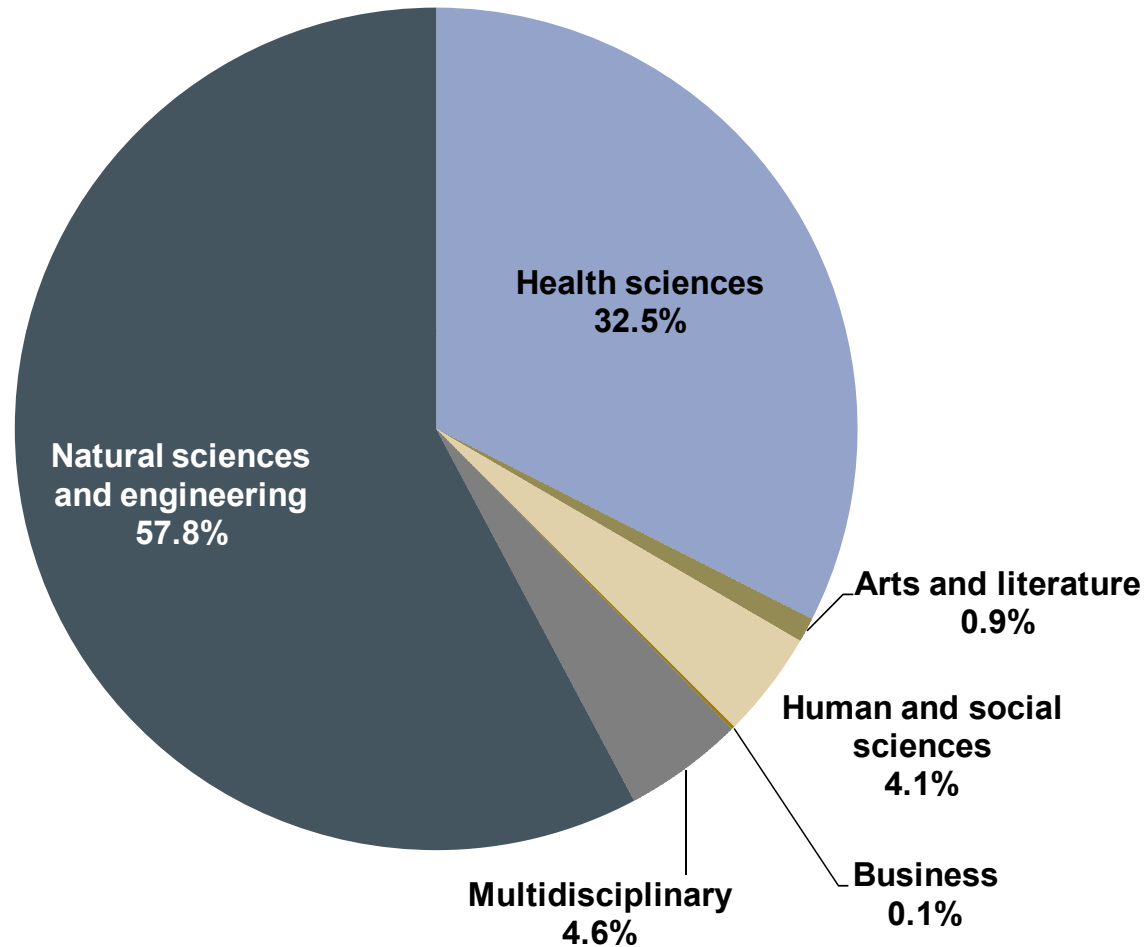
**Canada Graduate Scholarships  
Percentage of Spending by Agency (incl. Business Discipline)  
Fiscal Year (2009-2010)**



Note: "SSHRC" refers to SSHRC chairs excluding Business; "Business" refers to SSHRC chairs in Business discipline  
Source: Institute for Competitiveness & Prosperity analysis based on data from Treasury Board of Canada Secretariat; SSHRC website, available online at: <http://www.sshrc-crsh.gc.ca/>

# CFI Funding Under Represented in Business

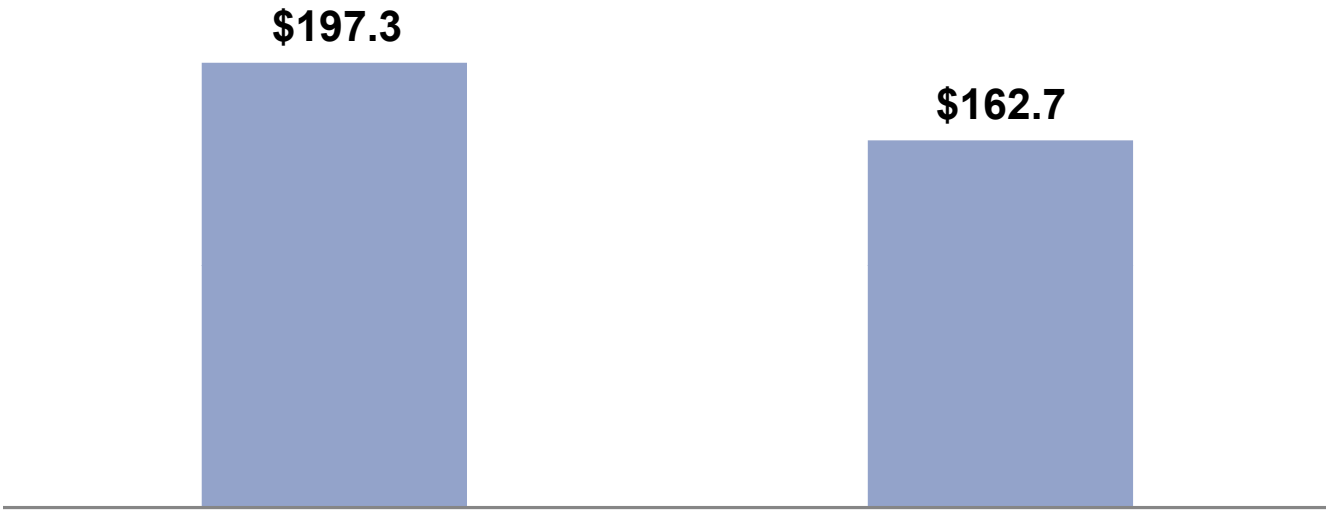
**Canada Foundation for Innovation  
Percentage of Funding by Research Discipline (1997-2010)**



Source: Institute for Competitiveness & Prosperity analysis based on data from Canada Foundation for Innovation, available online at: <http://www.innovation.ca/docs/projects/CFlawards230410.xls>

# Ontario Better Balanced, but Emphasis on Hard Sciences

## Ontario Ministry of Research & Innovation Program Spending, 2010 -11 \$ mm



### Science & Research

### Innovation & Commercialization

Principal programs

- Ontario Research Fund
- Ontario Institute for Cancer Research
- Research talent awards

- Innovation & commercialization network support
- Next Generation of Jobs Fund
- Innovation demonstration (bio-based environmental, alternative energies)
- Business eco-system support fund